

What is claimed is:

1. An internal combustion engine for an aircraft, comprising:
  - a crankshaft defining first and second ends;
  - a propeller;
  - a transmission disposed between the first end of the crankshaft and the propeller, operatively connecting the propeller to the crankshaft;
  - a torsion bar disposed between the first end of the crankshaft and the transmission, operatively connecting the crankshaft to the transmission; and
  - a torsional vibration damper operatively connected at one of the first and the second ends of the crankshaft.
2. The internal combustion engine of claim 1, wherein the torsional vibration damper is disposed at the second end of the crankshaft.
3. The internal combustion engine of claim 1, wherein the torsional vibration damper is disposed at the first end of the crankshaft.
4. The internal combustion engine of claim 1, wherein the torsional vibration damper is a viscous damper.
5. The internal combustion engine of claim 4, wherein the torsional vibration damper comprises:
  - a flywheel;
  - a housing disposed at a peripheral portion of the flywheel;

an annular body disposed within the housing such that a gap exists between the annular body and the housing; and

a viscous fluid disposed within the gap.

6. The internal combustion engine of claim 5, wherein the housing is integrated within the flywheel.

7. The internal combustion engine of claim 5, wherein the viscous fluid comprises silicon oil.

8. The internal combustion engine of claim 5, wherein the torsional vibration damper further comprises:

first and second rings disposed between the annular body and the housing at diagonally-opposed regions of the annular body to position the annular body within the housing such that the gap is maintained between the annular body and the housing.

9. The internal combustion engine of claim 8, wherein the first and second rings comprise plastic.

10. The internal combustion engine of claim 6, wherein the flywheel comprises:  
a starter gear being disposed at an outer periphery thereof.

11. The internal combustion engine of claim 10, wherein the starter gear is integrally formed on the outer periphery of the flywheel.

12. The internal combustion engine of claim 5, wherein the flywheel further comprises:  
a tubular extension connected to the flywheel at one side thereof.
13. The internal combustion engine of claim 12, wherein the tubular extension is integrally formed as a part of the flywheel.
14. The internal combustion engine of claim 12, wherein the tubular extension comprises:  
at least one pulse-generator wheel affixed to a peripheral surface thereof, wherein the pulse-generator wheel operates in connection with at least one sensor to establish a rotational position of the crankshaft.
15. The internal combustion engine of claim 12, wherein the tubular extension comprises:  
a rotor of an alternator affixed to a peripheral surface thereof.
16. The internal combustion engine of claim 1, further comprising:  
a replaceable sleeve disposed between the crankshaft and the torsion bar, operatively connecting the crankshaft to the torsion bar.
17. An aircraft, comprising:  
a fuselage; and  
at least one wing attached to the fuselage to provide a lifting force upon movement of the wing through air,  
wherein the fuselage is powered by an internal combustion engine comprising  
a crankshaft defining first and second ends;  
a propeller;

a transmission disposed between the first end of the crankshaft and the propeller, operatively connecting the propeller to the crankshaft;

a torsion bar disposed between the first end of the crankshaft and the transmission, operatively connecting the crankshaft to the transmission; and

a torsional vibration damper operatively connected at one of the first and the second ends of the crankshaft.

18. The aircraft of claim 17, wherein the torsional vibration damper is disposed at the second end of the crankshaft.

19. The aircraft of claim 17, wherein the torsional vibration damper is disposed at the first end of the crankshaft.

20. The aircraft of claim 17, wherein the torsional vibration damper is a viscous damper.

21. The aircraft of claim 20, wherein the torsional vibration damper comprises:

a flywheel;

a housing disposed at a peripheral portion of the flywheel;

an annular body disposed within the housing such that a gap exists between the annular body and the housing; and

a viscous fluid disposed within the gap.

22. The aircraft of claim 21, wherein the housing is integrated within the flywheel.

23. The aircraft of claim 21, wherein the viscous fluid comprises silicon oil.

24. The aircraft of claim 21, wherein the torsional vibration damper further comprises:  
first and second rings disposed between the annular body and the housing at diagonally-opposed regions of the annular body to position the annular body within the housing such that the gap is maintained between the annular body and the housing.
25. The aircraft of claim 24, wherein the first and second rings comprise plastic.
26. The aircraft of claim 22, wherein the flywheel comprises:  
a starter gear being disposed at an outer periphery thereof.
27. The aircraft of claim 26, wherein the starter gear is integrally formed on the outer periphery of the flywheel.
28. The aircraft of claim 21, wherein the flywheel further comprises:  
a tubular extension connected to the flywheel at one side thereof.
29. The aircraft of claim 28, wherein the tubular extension is integrally formed as a part of the flywheel.
30. The aircraft of claim 28, wherein the tubular extension comprises:  
at least one pulse-generator wheel affixed to a peripheral surface thereof, wherein the pulse-generator wheel operates in connection with at least one sensor to establish a rotational position of the crankshaft.

31. The aircraft of claim 28, wherein the tubular extension comprises:  
a rotor of an alternator affixed to a peripheral surface thereof.
32. The aircraft of claim 17, further comprising:  
a replaceable sleeve disposed between the crankshaft and the torsion bar, operatively  
connecting the crankshaft to the torsion bar.